Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Guideline for prevention of retained surgical items.

Bibliographic Source(s)

Wood A, Conner RL. Guideline for prevention of retained surgical items. In: 2016 Guidelines for Perioperative Practice. Denver (CO): Association of periOperative Registered Nurses (AORN); 2016 Jan. p. 369-414. [222 references]

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

Note from the Association of periOperative Nurses (AORN): The original guideline document provides guidance to perioperative team members for prevention of retained surgical items (RSIs) in patients undergoing operative and other invasive procedures. Guidance is provided for implementing a consistent multidisciplinary approach to preventing RSIs, accounting for surgical items (i.e., radiopaque soft goods, sharps and miscellaneous items, instruments), preventing retention of device fragments, reconciling count discrepancies, and using adjunct technologies to supplement manual count procedures.

I. A consistent multidisciplinary approach should be used for preventing RSIs during all surgical and invasive procedures.
II. Surgical soft goods (e.g., sponges, towels, textiles) opened onto the sterile field should be accounted for during all procedures in which soft goods are used.
III. Sharps and other miscellaneous items that are opened onto the sterile field should be accounted for during all procedures in which sharps and miscellaneous item are used.
IV. Instruments should be accounted for in all procedures for which the likelihood exists that an instrument could be retained.
V. Measures should be taken to prevent retention of device fragments.
VI. Standardized measures for reconciling count discrepancies should be taken during the closing count and before the end of surgery. When a discrepancy in a count is identified, the surgical team should take actions to locate the missing item.
VII. A multidisciplinary team may evaluate adjunct technologies for use as a supplement to manual counting procedures at the health care organization.
VIII. Documentation should reflect activities related to prevention of RSIs.
IX. Policies and procedures for the prevention of RSIs should be developed, reviewed periodically, revised as necessary, and readily available

in the practice setting.

X. Perioperative personnel should participate in a variety of quality assurance and performance improvement activities that are consistent with the facility or health care organization plan to improve understanding and compliance with the principles and processes of RSI prevention.

Clinical Algorithm(s)

An algorithm titled "Count Reconciliation Decision Tree" is provided in the original guideline document.

Scope

Disease/Condition(s)

Any condition requiring surgery or other invasive procedures

Guideline Category

Prevention

Risk Assessment

Clinical Specialty

Nursing

Surgery

Intended Users

Advanced Practice Nurses

Hospitals

Nurses

Guideline Objective(s)

- To provide guidance to perioperative team members for prevention of retained surgical items (RSIs) in patients undergoing operative and other invasive procedures
- To provide information for implementing a consistent multidisciplinary approach to preventing RSIs, accounting for surgical items (i.e., radiopaque soft goods, sharps and miscellaneous items, instruments), preventing retention of device fragments, reconciling count discrepancies, and using adjunct technologies to supplement manual count procedures

Target Population

Patients undergoing surgical and other invasive procedures

Interventions and Practices Considered

1. Consistent multidisciplinary approach for preventing retained surgical instruments (RSIs) during all surgical and invasive procedures
2. Measures to account for all

    - Surgical soft goods (e.g., sponges, towels, textiles) opened onto the sterile field
    - Sharps and other miscellaneous items opened onto the sterile field
    - Instruments used in the procedure
3. Measures to prevent retention of device fragments
4. Standardized measures for reconciling count discrepancies
5. Identification and location of missing items from a count discrepancy
6. Evaluation of adjunct technologies by the multidisciplinary team as a supplement to manual counting
7. Documentation of activities to prevent RSIs
8. Development, periodic review and revision as necessary, of policies and procedures for the prevention of RSIs
9. Participation of perioperative personnel in quality assurance and performance improvement activities

Major Outcomes Considered

- Incidence of retained surgical items (RSIs)
- Patient re-operation
- Patient readmission
- Morbidity/mortality

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Evidence Review

A medical librarian conducted a systematic search of the databases Ovid MEDLINE®, EBSCO Cumulative Index to Nursing and Allied Health Literature (CINAHL®), Scopus®, and the Cochrane Database of Systematic Reviews. The search was limited to literature published in English from 2009 through June 2014; editorials, news, and brief items were excluded. The lead author later requested supplementary searches on aspects of inaccuracy in counting and the roles of distraction, noise, and human factors in medical error. Between June 2014 and April 2015, the results of alerts established at the time of the initial search were assessed, and the lead author requested additional articles that either did not fit the original search criteria or were discovered during the evidence appraisal process. Finally, the lead author and the medical librarian identified relevant guidelines from government agencies, professional organizations, and standards-setting bodies.

Search terms included the subject headings *surgical count procedure, surgical instruments, operative surgical procedures, foreign bodies, medical errors, postoperative complications, re-operation, surgical wound infection, accident prevention, documentation, situational awareness, human error, noise,* and *interdisciplinary communication*. Other subject headings and key words were included to address the concepts of specific surgical items, root causes of errors in surgical counts, and methods for preventing retained surgical items (RSIs).

Excluded were non-peer-reviewed publications, evidence from other disciplines when evidence from the perioperative setting was available, and case reports that did not provide recommendations for preventing RSIs. Lower-level or lower-quality evidence was excluded when higher-level or higher-quality evidence was available. Opinion leaders have established accounting protocols for prevention of RSIs that were not published in peer-reviewed literature during the time frame of this systematic literature search, and thus these were excluded.

Number of Source Documents

In total, 1,170 research and non-research sources of evidence were identified for possible inclusion; of these, 222 are cited in the original guideline document. See Figure 1 in the original guideline document for a flow diagram of literature search results.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

I: Randomized controlled trial (RCT) or experimental study, systematic review of all RCTs

II: Quasi-experimental study, systematic review of quasi-experimental studies or combination of quasi-experimental and RCTs

III: Non-experimental studies, qualitative studies, systematic review of non-experimental studies, combination of non-experimental, quasi-experimental, and RCTs, or any or all studies are qualitative

IV: Clinical practice guidelines, position or consensus statements

V: Literature review, expert opinion, case report, community standard, clinician experience, consumer experience, organizational experience (quality improvement, financial)

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Articles identified by the search were provided to the project team for evaluation. The team consisted of the lead author and four evidence appraisers. The lead author divided the search results into topics and assigned members of the team to review and critically appraise each article using the Association of periOperative Registered Nurses (AORN) Research or Non-Research Evidence Appraisal Tools as appropriate. The literature was independently evaluated and appraised according to the strength and quality of the evidence. Each article was then assigned an appraisal score. The appraisal score is noted in brackets after each reference, as applicable.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The collective evidence supporting each intervention within a specific recommendation was summarized and the Association of periOperative Registered Nurses (AORN) Evidence Rating Model was used to rate the strength of the evidence. Factors considered in the review of the collective evidence were the quality of the evidence, the quantity of similar evidence on a given topic, and the consistency of evidence supporting a recommendation. The evidence rating is noted in brackets after each intervention in the original guideline document.

Rating Scheme for the Strength of the Recommendations

1: Strong Evidence: Interventions or activities for which effectiveness has been demonstrated by high quality evidence from rigorously-designed studies, meta-analyses, or systematic reviews, or rigorously-developed clinical practice guidelines

- Evidence from a meta-analysis or systematic review of research studies that incorporated evidence appraisal and synthesis of the evidence in

the analysis
- Supportive evidence from a single well-conducted randomized controlled trial (RCT)
- Guidelines that are developed by a panel of experts, that derive from an explicit literature search methodology, and include evidence appraisal and synthesis of the evidence

1: Regulatory Requirement: Federal law or regulation

2: High Evidence: Interventions or activities for which effectiveness has been demonstrated by evidence from:

- Good quality systematic review of RCTs
- High quality systematic review in which all studies are quasi-experimental or a combination of RCTs and quasi-experimental studies
- High quality quasi-experimental study
- High quality systematic review in which all studies are non-experimental or include a combination of RCTs, quasi-experimental, and non-experimental studies. Any or all studies may be qualitative.
- High quality non-experimental studies
- High quality qualitative studies
- Good quality clinical practice guideline, consensus or position statement

3: Moderate Evidence: Interventions or activities for which the evidence is has been demonstrated by evidence from:

- Good quality systematic review in which all studies are quasi-experimental or a combination of RCTs and quasi-experimental studies
- Good quality quasi-experimental study
- High or good quality literature review, case report, expert opinion, or organizational experience

4: Limited Evidence: Interventions or activities for which there are currently insufficient evidence or evidence of low quality

- Supportive evidence from a poorly conducted research study
- Evidence from non-experimental studies with high potential for bias
- Guidelines developed largely by consensus or expert opinion
- Non-research evidence with insufficient evidence or inconsistent results
- Conflicting evidence, but where the preponderance of the evidence supports the recommendation

5: Benefits Balanced with Harms: Selected interventions or activities for which the Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board is of the opinion that the desirable effects of following this recommendation outweigh the harms

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The Guideline for Prevention of Retained Surgical Items has been approved by the Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board. It was presented as a proposed guideline for comments by members and others. The guideline is effective January 15, 2016.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The literature was independently evaluated and appraised according to the strength and quality of the evidence. Each article was then assigned an appraisal score. The appraisal score is noted in brackets after each reference in the original guideline document, as applicable. Also see the original guideline document for the systematic review and discussion of evidence.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Prevention of retained surgical items (RSIs)
- Refer to the original guideline document for additional discussion of potential benefits of specific interventions.

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

- These recommendations represent the Association's official position on questions regarding optimal perioperative nursing practice.
- No attempt has been made to gain consensus among users, manufacturers, and consumers of any material or product.
- Compliance with the Association of periOperative Registered Nurses (AORN) guideline is voluntary.
- AORN's recommendations are intended as achievable and represent what is believed to be an optimal level of patient care within surgical and invasive procedure settings.
- Although they are considered to represent the optimal level of practice, variations in practice settings and clinical situations may limit the degree to which each recommendation can be implemented.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Clinical Algorithm

Mobile Device Resources

Resources

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report

Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Wood A, Conner RL. Guideline for prevention of retained surgical items. In: 2016 Guidelines for Perioperative Practice. Denver (CO): Association of periOperative Registered Nurses (AORN); 2016 Jan. p. 369-414. [222 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2016 Jan

Guideline Developer(s)

Association of periOperative Registered Nurses - Professional Association

Source(s) of Funding

Association of periOperative Registered Nurses (AORN)

Guideline Committee

Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board

Composition of Group That Authored the Guideline

Lead Author: Amber Wood, MSN, RN, CNOR, CIC, Senior Perioperative Nursing Specialist, AORN Nursing Department, Denver, CO

Contributing Author: Ramona Conner, MSN, RN, CNOR, Editor-in-Chief, Guidelines for Perioperative Practice, AORN Nursing Department, Denver, CO

Team Members: David L. Feldman, MD, MBA, CPE, FACS, Senior Vice President and Chief Medical Officer, Hospitals Insurance Company, New York, New York; Victoria Steelman, PhD, RN, CNOR, FAAN, Associate Professor, University of Iowa, Iowa City; Amy L. Halverson, MD, Associate Professor of Surgery, Northwestern University, Chicago, Illinois; Judith L. Goldberg, DBA, MSN, RN, CNOR, CSSM, CHL, Director, Patient Care Services, Perioperative and Procedural Services, Lawrence Memorial Hospital, New London, Connecticut; Barbara L. Nalley, MSN, CRNP, CNOR, Manager, Anne Arundel Medical Group, Annapolis, Maryland; Deborah F. Mulloy, PhD, RN, CNOR, Associate Chief Nurse, Quality & Center for Nursing Excellence, Brigham & Womens Hospital, Newtonville, Massachusetts; Jocelyn M. Chalquist, BSN, RN, CNOR, Surgical Services Educator, Aurora Medical Center-Kenosha, Kenosha, Wisconsin; Janice Neil, PhD, RN, CNE, Associate Professor, College of Nursing, East Carolina University, Greenville, North Carolina; Aileen R. Killen, RN, PhD, CPPS, Director, Patient Safety Program, Memorial Sloan Kettering Cancer Center, New York, New York; Lisa Spruce, DNP, RN, CNS-CP, ACNS, ACNP, CNOR, FAAN, Director of Evidence-based Perioperative Practice, AORN Nursing Department, Denver, Colorado; Jay Bowers, BSN, RN, CNOR, TNCC, Clinical Educator, WVU Health Care, Morgantown, West Virginia; Sandy Albright, MSHM, BSN, RN, CNOR, Clinical Consultant, Cardinal Health, Dublin, Ohio; Christine Anderson, PhD, RN, Clinical Assistant Professor, University of Michigan School of Nursing, Division of Health Systems and Effectiveness Science, Ann Arbor, Michigan

Financial Disclosures/Conflicts of Interest

No financial relationships relevant to the content of this guideline have been disclosed by the authors, planners, peer reviewers, or staff.

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Electronic copies: Available to subscribers from the Association of periOperative Nurses (AORN) Web site.

Print copies: Available for purchase from the AORN Web site.

Availability of Companion Documents

The following is available:

- Guideline for prevention of retained surgical items evidence table. 2016. 60 p. Available from the Association of periOperative Nurses (AORN) Web site.

Additional implementation tools, including clinical FAQs, online learning modules, videos and community discussions are available from the AORN Web site.

Documents related to the evidence rating model, hierarchy of evidence, and expanded appraisal tools are available from the AORN Web site.

In addition, an AORN Guidelines for Perioperative Practice eBook mobile app is available from the AORN Web site.

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on February 17, 2016. The information was verified by the guideline developer on March

30, 2016.

Copyright Statement

Disclaimer

NGC Disclaimer

The National Guideline Clearinghouseâ„¢ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion-criteria.aspx.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.